

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-285018

(43)Date of publication of application : 03.10.2002

(51)Int.Cl.

C08L101/10
C08K 5/098
C09J109/00
C09J157/06
C09J171/00
C09J201/10
C09K 3/10

(21)Application number : 2001-088406

(71)Applicant : NITTO KASEI CO LTD

(22)Date of filing : 26.03.2001

(72)Inventor : NAKAMURA HIROMASA
MURANAKA TAKAYUKI
TABUCHI HITOSHI

(54) MOISTURE-CURABLE RESIN COMPOSITION

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a moisture-curable resin composition of which the surface tackiness disappears in a short time as compared with the existing moisture-curable resin composition.

SOLUTION: This moisture-curable resin composition is composed of 100 pts.wt. of an organic polymer (a) containing a silyl group and having at its molecular terminal or on its side chain at least one functional group having a silicon atom bound to a hydrolyzable group per molecule and 0.1-20 pts.wt. of a tin compound (b) of a carboxylic acid which is expressed in general formula (1) below (wherein, R¹, R², R³ are each a 1-10C hydrocarbon group that may be identical or different) where the α carbon atom of the carboxylic acid is a tertiary carbon.



* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.

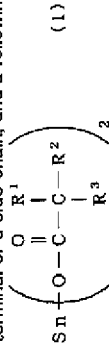
2.*** shows the word which can not be translated.

3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1]Silyl group content organicity polymer (a) 100 weight section which has one basis which has the silicon atom combined with a hydrolytic basis even if small [per molecule] to a molecular terminal or a side chain, and a following general formula (1) : [Formula 1]



(Among a formula, R¹, R², and R³ are hydrocarbon groups with 1-10 carbon atoms, respectively, and) differing, even if R¹, R², and R³ are the same to mutual --- *** --- a moisture curing type resin composition, wherein the carbon atom of the alpha position of carboxylic acid expressed consists of the tin compound (b) 0.1 of the carboxylic acid which is the third class carbon - 20 weight sections. [Claim 2]The moisture curing type resin composition according to claim 1 which is a moisture curing type resin composition of 2 liquid type which consists of a main agent component (A) containing said silyl group content organicity polymer (a), and a curing catalyst ingredient (B) containing said tin compound (b) ingredient.

[Claim 3]The moisture curing type resin composition according to claim 1 or 2 in which said silyl group content organicity polymer (a) is what uses a polymer of polyether and an ethylenic unsaturated compound, or a polymer of diene series as a main chain.

[Claim 4]The moisture curing type resin composition according to any one of claims 1 to 3 in which said tin compound (b) is SUTANASU screw pivalate or SUTANASU screw neo decanoate.

[Translation done.]

* NOTICES *

JP0 and IPIT are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.

2.*** shows the word which can not be translated.

3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to a moisture curing type resin composition suitable 2 liquid type to use as a sealing agent, adhesives, etc. with which it hardens about a moisture curing type resin composition for a short time after mixing a main agent component and a curing catalyst ingredient, and surface tackiness disappears for a short time.

[0002]

[Description of the Prior Art] As a useful hardening resin constituent, the thing using the organic polymer which has a hydrolytic silicon content group which uses polyether, polyester or an ethylenic unsaturated compound, the polymer of diene series, etc. as a main chain, and for which a bridge can be constructed as the main ingredients is known by adhesives and the sealing agent. These are stiffened by forming a siloxane bond. The hardening resin constituent using the organic polymer which has this hydrolytic silicon content group is excellent in hardenability, storage stability, weatherability, etc. As a curing catalyst of the organic polymer which has said hydrolytic silicon content group, The organic metallic compound of others, such as organic tin (IV) compounds, such as carboxylic acid tin (II) compounds, such as 2-ethylhexanoic acid tin and n-tin octylate, dibutyltin dilaurate, and dibutyltin maleate, naphthenic acid iron, and lead octylate, is used. Especially, since it excels in a cure rate and hardened material nature, the organic tin (IV) compound and the carboxylic acid tin (II) compound are used widely.

[0003]

[Problem(s) to be Solved by the Invention] However, since the influence which does each of organic tin compounds and organic lead compounds to environment and a human body is great, when using it, sufficient cautions are needed. moreover — conventionally, carboxylic acid tin (II), such as 2-ethylhexanoic acid tin and n-tin octylate, are mainly used as an organic tin compound — *** (JP.S61-60867.B). The carbon atom of the alpha position of carboxylic acid was carboxylic acid which is first-class carbon or the second class carbon, and all were deactivated with the humidity in the air, etc., and had the problem that surface tackiness was not canceled for a long time. Therefore, development of the curing catalyst which has a practical cure rate and by which surface tackiness is canceled for a short time was desired.

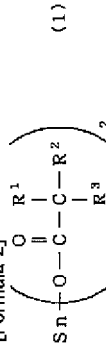
[0004]

[Means for Solving the Problem] Then, wholeheartedly, as a result of research, this invention persons find out a moisture curing type resin composition which has the fast curability which is equal to 2-ethylhexanoic acid tin currently conventionally used as a curing catalyst, n-tin octylate, etc., and surface tackiness cancels for a short time, and came to complete this invention.

[0005] That is, this invention provides the following moisture curing type resin composition.

(1) Silyl group content organicity polymer (a) 100 weight section which has one basis which has the silicon atom combined with a hydrolytic basis even if small [per molecule] to a molecular terminal or a side chain, and following general formula (1): [0006]

[Formula 2]



[0007] (Among a formula, R¹, R², and R³ are hydrocarbon groups with 1-10 carbon atoms,

respectively, and) differing, even if R¹, R², and R³ are the same to mutual — *** — a moisture curing type resin composition, wherein the carbon atom of the alpha position of carboxylic acid expressed consists of the tin compound (b) 0.1 of the carboxylic acid which is the third class carbon — 20 weight sections.

(2) A moisture curing type resin composition given in (1) paragraph which is a moisture curing type resin composition of 2 liquid type which consists of a main agent component (A) containing said silyl group content organicity polymer (a), and a curing catalyst ingredient (B) containing said tin compound (b) ingredient.

(3) A moisture curing type resin composition given in (1) or (2) paragraphs in which said silyl group content organicity polymer (a) is what uses the polymer of polyether and an ethylenic unsaturated compound, or the polymer of diene series as a main chain.

(4) A moisture curing type resin composition given in either of the (1) - (3) paragraphs in which said tin compounds (b) are the SUTANASU screw pivalate or SUTANASU screw neo decanoate.

[0008]

[Embodiment of the Invention] The basis which has the silicon atom which combined with the hydrolytic basis the organic polymer (a) used for this invention. Even if small [to a molecular terminal or a side chain / per molecule] in (it may be hereafter called the silicon group combined with the hydrolytic basis), it is an organic polymer which it has one piece, and an alkylene oxide polymer thru/or polyether, an ether ester block copolymer, etc. are mentioned as a main chain of this polymer. The polymer of an ethylenic unsaturated compound and diene series, etc. are mentioned. The liquefied thing of these main chain polymer is preferred at a room temperature.

[0009] As said alkylene oxide polymer thru/or polyether, [CH₂CH₂O] n[CH(CH₃) CH₂O] n[CH(C₂H₅) CH₂O] n[CH₂CH₂CH₂CH₂O] What has one sort of repeating units, such as n, or two sorts or more is illustrated. Here, n is two or more integers. These alkylene oxide polymers thru/or polyether may be used independently, and may use two or more sorts together.

[0010] As a polymer of an ethylenic unsaturated compound and diene series. Homopolymers, such as ethylene, propylene, acrylic ester, methacrylic acid ester, vinyl acetate, acrylonitrile, styrene, isobutylene, butadiene, isoprene, and chloroprene, or these two or more sorts of copolymers are mentioned. More specifically Polybutadiene, a styrene butadiene copolymer, an acrylonitrile butadiene copolymer, An ethylene-butadiene copolymer, ethylene propylene rubber, an ethylene-vinylacetate copolymer, An ethylene-(meta) acrylic ester copolymer, polyisoprene, A styrene isoprene copolymer, an isobutylene-isoprene copolymer, polychloroprene, a styrene chloroprene copolymer, an acrylonitrile chloroprene copolymer, polyisobutylene, polyacrylic ester, polymethacrylic acid ester, etc. are mentioned. These may be used independently or may use two or more kinds together.

[0011] The silicon group combined with said hydrolytic basis is a basis which causes a condensation reaction by using a catalyst etc. if needed under existence of humidity and a cross linking agent. Specifically, a halogenation silyl group, alkoxy silyl groups, an alkenyl oxyisilyl group, an acyloxy silyl group, an amino silyl group, an amino oxyisilyl group, an oxime silyl group, and an amide silyl group are mentioned. Here, the number of these hydrolytic bases combined with one silicon atom is chosen from the range of 1-3. The number of the hydrolytic bases combined with one silicon atom may be one, and that of them may be [two or more]. Furthermore, the hydrolytic basis and the non-hydrolytic basis may combine with one silicon atom. As a silicon group combined with the hydrolytic basis, handling is an easy point, and especially alkoxy silyl groups (mono- alkoxy silyl groups, a dialkoxy silyl group, and the Tori alkoxy silyl groups are included) is preferred. The silicon group combined with the hydrolytic basis may exist in the end of a polymer molecule, or may exist in the side chain. Even if the silicon group combined with the hydrolytic basis has few polymers per molecule, it is preferred that it averages per molecule from a point of a cure rate and hardened material nature, and there are 1.5 or more pieces with one piece although it is good. A method publicly known as a method of combining with said main chain polymer the silicon group combined with the hydrolytic basis is employable.

[0012] Although the molecular weight of the organic polymer (a) used by this invention does not have restrictions in particular, the thing of Polymer Division is hyperviscosity, and since it becomes

lauryl amine: — Kanto Kagaku extra-pure-reagent bis(2-ethylhexanoic acid)tin: — the day east — Transformation → make — bis(*n*-octylic acid)tin: — the day east — Transformation — make [0040]

[Translation done.]